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5 **WE CLAIM:**

1. A piezo actuator drive circuit, comprising:

a drive amplifier having an input, and an output adapted to drive a piezo actuator in a voltage mode; and

a calibration circuit coupled to the drive amplifier characterizing the piezo actuator in the voltage mode.

- 2. The drive circuit as specified in Claim 1 wherein the calibration circuit is selectively coupled to the piezo actuator in a calibration mode.
- 3. The drive circuit as specified in Claim 2 wherein the calibration circuit provides a predetermined current to the piezo actuator in the calibration mode.
- 4. The drive circuit as specified in Claim 3 wherein the predetermined current is a fixed current.
- 5. The drive circuit as specified in Claim 3 wherein the calibration circuit characterizes the piezo actuator as a function of the predetermined current.
- 6. The drive circuit as specified in Claim 3 further comprising a sense circuit sensing a signal indicative of the piezo actuator when the predetermined current is provided thereto.

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- 7. The drive circuit as specified in Claim 6 wherein the sense circuit comprises a resistor divider providing a voltage signal.
 - 8. The drive circuit as specified in Claim 7 wherein the voltage signal varies proportionally to the piezo actuator load.
 - 9. The drive circuit as specified in Claim 6 wherein the drive amplifier has a feedback, wherein the sense circuit is a portion of the feedback.
 - 10. The drive circuit as specified in Claim 6 wherein the signal is indicative of the piezo actuator load variation.
 - 11. The drive circuit as specified in Claim 2 further comprising a current mirror selectively coupled to the output of the drive amplifier in the voltage mode.
 - 12. The drive circuit as specified in Claim 11 wherein the current mirror is selectively uncoupled from the drive amplifier in the calibration mode.
 - 13 The drive circuit as specified in Claim 12 wherein the current mirror is a class AB amplifier.
 - 14. The drive circuit as specified in Claim 1 wherein the drive amplifier has a voltage mode feedback configured to allow multiple piezo actuators to be driven in the charge mode.

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- 15. The drive circuit as specified in Claim 14 wherein the voltage mode feedback includes a capacitor coupled at the drive amplifier output, wherein the voltage mode feedback senses the voltage at the capacitor.
- 16. The drive circuit as specified in Claim 15 wherein the voltage mode feedback has an adjustable gain being variable as a function of the number of piezo actuators driven.
 - 17. The drive circuit as specified in Claim 16 wherein the adjustable gain is accomplished using a variable resistor in the voltage mode feedback.
 - 18. The drive circuit as specified in Claim 1 wherein the drive amplifier has a first output, and a second output having a current mirror based on the first output.
 - 19. The drive circuit as specified in Claim 18 wherein a capacitor is coupled to the first output and the piezo actuators are adapted to be driven by the second output.
- 20. The drive circuit as specified in Claim 19 wherein a first time constant formed by the capacitor and the voltage mode feedback, and a second time constant formed by the piezo actuators and the voltage mode feedback, are substantially equal.

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- 5 21. The drive circuit as specified in Claim 14 further comprising a DC control circuit controlling the DC value at the piezo actuator.
 - 22. The drive circuit as specified in Claim 21 wherein the DC control circuit is integrated into the low frequency compensation loop.
 - 23. The drive circuit as specified in Claim 1 further comprising a digital-toanalog (DAC) coupled to one drive amplifier input and a voltage reference being coupled to another drive amplifier input.
 - 24. The drive circuit as specified in Claim 1 further comprising an ADC coupled to the calibration circuit.